

Our Vision for Planetary Sustainability

1

A world in which all people have access to abundant water, food, and energy, as well as protection from severe storms and climate change impacts

2

Healthy and sustainable worldwide economic growth from renewable products and resources

3

A multi-planetary society, where the resources of the solar system are available to the people of Earth

“This is a global problem and only by acting both locally and globally do we have any chance of reducing the unrelenting increase of heat-trapping gasses”

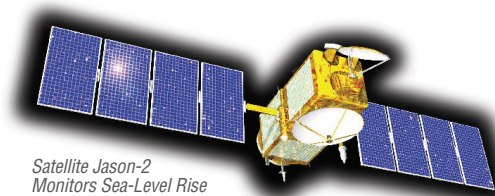
- Governor Jerry Brown

NASA Tools to Enable Decision Makers

NASA has a large suite of Earth modeling and monitoring tools which can aid decision making. These tools include Earth observing satellites and the NASA Earth Exchange, a common interface for collating these various data sources. Together, they can create a portal to support decision makers by providing an integrated assessment using critical climate and economic information to understand the effects of climate change.

Examples of Monitoring and Modeling Scenarios:

1. Drought and snowpack level impacts on irrigation and water management.
2. Sea-level rise and changes in ocean health.
3. Changes in forest biomass and CO₂ cycling.
4. Changes in agriculture (e.g. food, wine industry).



Why Planetary Sustainability at NASA?

The 2014 NASA Strategic Plan calls upon the agency to meet the challenges of environmental change, and to improve life on our planet. It also directs NASA to advance our understanding of the Earth and to develop technologies to improve the quality of life on our home planet. NASA will do this by partnering with other federal government agencies, local governments, universities, international agencies, and others to provide science data products and applications that enable policy, business, and management decisions. (Management and Performance report, M&P-49)



Planetary Sustainability Initiative

Taking on Humanity's Greatest Challenges

Our Mission

To apply NASA's unique talents, capabilities, and culture to create new public/private partnerships. These partnerships will work to develop effective solutions for current and future planetary sustainability challenges.

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NASA's Expertise

NASA has a number of new tools, techniques and approaches for closely monitoring global climate change, and advancing climate modeling. Our Super and Quantum Computer Facility allows for advanced simulation and modeling. NASA also has in house expertise in Earth Sciences and Planetary atmospheres and can take advantage of its growing programs in small satellites (e.g. Cubesats, Nanosats) and its UAV collaborative.

NASA Sustainability Base

NASA's first Platinum LEED certified building is a key part of NASA's Planetary Sustainability Initiative. Sustainability Base is not only the most advanced green facility in the U.S. government, the building itself is a test laboratory in which new resource efficient technologies can be evaluated in a real world environment. NASA continues to use it's engineering expertise to develop advanced technologies and affordable solutions to lessen the effects from severe weather and other climate change impacts. These include areas such as water purification and Advanced Life Support. It also has relevant technology development initiatives as part of its Astrobiology and Synthetic Biology programs. These technology programs allow the agency to identify, assess and develop options for renewable resources and living, all of which are applicable outside of the Earth too.

NASA Research Park

NASA Research Park fosters partnerships with commercial space companies, Silicon Valley investors, startups and established companies.

Planetary Sustainability

“We need to ultimately make clean, renewable energy the profitable kind of energy”
- President Barack Obama

For Survival

California has a number of cities at risk of being negatively impacted by climate change. These impacts include the pressing issues of drought, sea-level rise, temperature increase, green house gas increase and flooding. These changes will have a significant effect on our economy.

For Profit

The Planetary Sustainability Initiative seeks active partnerships with industry where our objectives and goals are aligned. NASA needs new technology to sustain life outside of this planet. The Earth needs better ways to create sustainable habitats here. These partnerships can create an infrastructure that supports the creation of new technologies, jobs, and sustainable businesses.



For Public Benefit

NASA is engaging local stakeholders in partnerships related to planetary sustainability. The Space Portal Office provides an environment conducive to partnerships along with opportunities for meetings and workshops to take place. Our workshops facilitate interactions between NASA engineers, scientists and local stakeholders. They also provide a venue for said stakeholders to learn from NASA, other federal agencies, and both state and local experts about the magnitude of the challenge we face and the options and strategies that are available to plan for and adapt to this new reality.

Requirements for Sustainability

	Earth	Space
Renewable Energy	✓	✓
Clean Water Food	✓	✓
Consumables production	✓	✓
CO ₂ Sequestration	✓	✓

